120

QC8- Inspect parts - second check

0.00

<u>\*</u>120\*

Memo

0.00 12 & 1

Quality Control

Cou

Lue

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										DQA:	Date	·
NCR: Y	es / No				WORK ORDER NON-	COI	NFORN	AANCE / UPDA				
					···		·			QA Closed:	Date	
Work Orde	, ri·				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIGE					Rework	7	1	Skid-tube	Crosstube	Ŷ.	Water Jet	Engineering
Part N	lo.				Scrap	1	3	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
				<del></del>	Use-as-is	1		noforming	Finishing		re/Packaging	Other
NCR N	lo	<del>-</del>		<u> </u>	Work Order Update	]		Large Fab	Composite		Supplier	
Root	1			Descri	I ption of work order update	T	Initial	Action	n	Sign &	<u> </u>	
Cause	Date	Step	Qty	(	or Non-conformance	Ch	nief Eng	Descrip	tion	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling							İ					
Operator												
Material												
Setup												
Other			1									
Process		1										
Supplier											,	
Training					•							
Unapproved		<u> </u>			·							
					F	AUL	LT CATE	GORY				
Landir	ng Gear			<del> </del>	General	_	7			l		7
	Bending				Bend		Grain		<b>—</b>	Ovalized	<u> </u>	Pressure/Forced
	Centre N	ot Conce	ntric to	o/s	BOM/Route	$\vdash$	Hardwa		<del> </del>	Over/Under	<b>├</b>	Temperature/Cure
.	Cracks			_	Broken/Damaged	<u> </u>	-i `	on Incomplete	<b>⊢</b>	Part Incorred	<b>⊢</b>	Weld
	Crushed/	'Crimped			Burrs	$\vdash$	-1	ions Incomplete/Und	·	Part Lost/Mi	ssing	Wrong Stock Pulled
ĺ	Cuffs				Contamination	<u></u>	Mainte		<b>├</b>	Part Moved		
	Heat Trea			_	Countersink		Mislabe			Positioned V	_	٦
	Inspectio		Tube		Cut Too Short		Misread	l	L	Power Loss/	Surge	Other
	Ripples in	n Bend		ŀ	Drill Holes		Offset					

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Work Orde		0467		*10	046	37*						Page 2
Item ID: Revision ID:	D2144			Accept	*	<b>1900</b>	<b>040</b>	100	)*	Setup Star Sto	1 1	S1* S2*
Item Name: Start Date: Required Date:	Hinge Bracket 4/22/13 : 5/03/13	<b>Start Qty:</b> 12.00 <b>Req'd Qty:</b> 12.00	*12* *12*		,	Cust Item I Customer:	D:				I	/
Approvals:		n:					ate:		1	Run Stai	1/1	R1* R2*
Sequence ID/ Work Center II 130 *120* Small Fab Small Fab	D	Operation Description  Small Fab  Memo Deburr if ne	ccessary	Set Up/ Run Hours 0.00	NA	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *110* Brake NC Brake NC		NC BRAKE  Memo  Form as per	Dwg D2144Rev:	0.00 0.00					<i>7</i> 0	· — — — — — — — — — — — — — — — — — — —	<del></del>	S) 13/09/
150 *150* QC Quality Control		QC5- Inspect part comp	leteness to step on W/O	0.00 PAS 9-89 0.00 PAS	27				30 , Com	· <u>-</u> .	····- <u></u> -	

										DQA:	Dat	e:
NCR: Y	es / No				WORK ORDER NON-C	OI	NFORM	MANCE / UPDATE		QA Closed:	Dat	e:
					DISPOSITION			AGAIN	ST DE	PARTMENT		
Work Orde	r:				Dawa et C	1		Skid-tube Crosstu	h a [	1	Water Jet	Engineering
Part N	o			·	Rework Scrap Use-as-is		ſ	Machining Small F	ab	-	d. Eng. Coor. re/Packaging	Quality Other
NCR N	lo				Work Order Update			Large Fab Compos			Supplier	
Root				Descri	ption of work order update		nitial	Action		Sign &		
Cause	Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator											<u> </u>	
Material												
Setup			1								ē.	
Other												
Process		1										
Supplier							•					
Training												
Unapproved		<u> </u>				<u> </u>						
					F	AUL	T CATE	GORY				
Landir	ng Gear			<b></b>	General		1			7	-	_
	Bending				Bend	<u>_</u>	Grain		$\perp$	Ovalized		Pressure/Forced
	Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa			Over/Under	F	Temperature/Cure
	Cracks			L	Broken/Damaged		4 '	on Incomplete		Part Incorre		Weld
	Crushed/Crimped			Burrs	_	4	ions Incomplete/Unclear	_	Part Lost/M	issing [	Wrong Stock Pulled	
	Cuffs				Contamination	<u></u>	Mainte			Part Moved		
	Heat Tre			L	Countersink	ļ	Mislabe			Positioned V		<del>-</del>
	Inspection	•	Tube	ļ	Cut Too Short	_	Misread	l	L	Power Loss/	Surge [	Other
	Ripples in	n Bend			Drill Holes	L	Offset			<del></del>		
	Torque V	Vaves in E	Extrusio	n	Drawing		Out of 0	Calibration				

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde April-22-13 1:4		0467		*100	)467*	_ p					Page	3
Item ID: Revision ID: Item Name: Start Date:	D2144 Hinge Bracket 4/22/13	Start Qty: 12.00	*12*	Accept	*N9000		100	)*	Setup	Start Stop	1721	
Required Date:	: 5/03/13	Req'd Qty: 12.00	*12*		Customer:				D	Start		٠.
Approvals:		in:	Date:		Date	e:			Run	Start Stop	*NR1*	
Sequence ID/ Work Center II 160 *160* Large Fab Large Fab		Operation Description  Large Fab  Memo	er as per Dwg D2144 & Q	Set Up/ Run Hours 0.00		Tool#	Plan Code	Accept Qty	Qty	•	Reject Insp. Number Stamp	MAL
170 *170*		QC9- Inspect visual per (	QS1004- Fusion Welds	0.00					( <del>)</del>	17	<u>- 13 - 03</u>	<b>0.9</b> 6

180

QC5- Inspect part completeness to step on W/O

0.00

\*120\*

Memo

0.00

Quality Control

(3) 13-10-00

	•									DQA:	Date:	
NCR: Y	es / No				WORK ORDER NON-C	100	NFORM	MANCE / UPDATE		QA Closed:	Date:	
Mork Orde	<u>.</u>				DISPOSITION			AGAINST D		PARTMENT/		
Work Orde	er:				Rework	1		Skid-tube Crosstube	$\neg$		Water Jet	Engineering
Part N	lo			<u>:</u>	Scrap	1		Machining Small Fab	$\Box$	l	d. Eng. Coor.	Quality
NCR N	lo				Use-as-is Work Order Update			noforming Finishing Large Fab Composite		Rec/Stor	e/Packaging Supplier	Other
Root				Descri	ption of work order update	I	nitial	Action		Sign &		
Cause	Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector
Doc/Data								-				
Equip/Tooling						İ		·				
Operator									-		,	
Material												
Setup						İ			- 1			
Other												
Process											•	
Supplier						ŀ					•	
Training												
Unapproved												
					F	AUL	T CATE	GORY			*	
Landi	ng Gear			_	General			_		1		•
	Bending	5			Bend		Grain			Ovalized		Pressure/Forced
	Centre I	Not Conce	ntric to	O/S	BOM/Route	<u></u>	Hardwa	re	-	Over/Under	<del></del>	Temperature/Cure
	Cracks				Broken/Damaged		4 '	on Incomplete	-	Part Incorrec	<b></b>	Weld
	Crushed	I/Crimped			Burrs	<u></u>	4	ions Incomplete/Unclear	$\rightarrow$	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				Contamination		Mainte	enance	$\_$	Part Moved		
	Heat Tr	eat			Countersink		Mislabe	led		Positioned W	/rong	

Misread

Out of Calibration
Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing 🖰

Finish Folio

Work Orde April-22-13 1:41		)467		*100	1467*				Page 4	
Revision ID:	D2144 Hinge Bracket			Accept	*N900040	100	* Set	tup Start Stop	*NS1* *NS2*	
Start Date: 4 Required Date: 5 Reference:	4/22/13 5/03/13	Start Qty: 12.00 Req'd Qty: 12.00	*12* *12*		Cust Item ID: Customer:					
,		1:	Date:		Date:		Ru	n Start Stop	*NR1* *NR2*	
Sequence ID/ Work Center ID  190  *100* Powdercoat  Powder Coating		Operation Description White Gloss(Ref:4.3.5.1)  Memo START TIMI	E:	Set Up/ Run Hours 0.00  0.00  OVEN TEMPERATUR	Tool ID Tool #				Reject Insp. Number Stamp	
200 *200* QC Quality Control	(00	QC3- Inspect Part Finish  Memo		0.00		37	φ <sub>α</sub> Φ <sub>α</sub>	13-10	29 nzos	
210 *210* Packaging		Identify as per dwg & Sto	ick Location: <u>ST00</u> 3	0.00			30		DAS 33 9-89   3-1	10-09

Packaging

											DQA:	Da	ate:	_
NCR: Y	es / No				WORK ORDER NON-	O	VFORM	MANCE / UP	DATE					
											QA Closed:	Di	ate:	
Work Orde	, j.				DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
WOIK OIGE					Rework	1		Skid-tube	Crosstube	Г	1	Water Je	٠	Engineering
Part N	lo.				Scrap	1 1		Machining	Small Fab	_	Pro	d. Eng. Coor	-	Quality
					Use-as-is	1		noforming	Finishing	⊢	4	re/Packaging	_	Other
NCR N	lo.				Work Order Update	1		Large Fab	Composite		1	Supplie	_	
Root					ption of work order update	1	nitial iief Eng		tion		Sign &			
Cause	Date	Date Step Qty or Non-conformance						Desci	ription		Date	Verification	on_	QC Inspector
Doc/Data					•	1					'			
Equip/Tooling	_													
Operator														
Material	_					Ì								
Setup	_		1											
Other								Ė						
Process														
Supplier						1								
Training	_													
Unapproved												<u> </u>		
					<del></del>	AUL	T CATE	GORY			-			
Landir	ng Gear				General	_	۱			_	1		_	J <sub>2</sub> (5 )
	Bending			0/0	Bend	$\vdash$	Grain			H	Ovalized	<b>*</b> -1	$\vdash$	Pressure/Forced
		Not Conce	ntric to	O/S	BOM/Route	-	Hardwa			L	Over/Under		-	Temperature/Cure
	Cracks	40		<u> </u>	Broken/Damaged	-	1 '	on Incomplete	ta da an	$\vdash$	Part Incorred		$\vdash$	Weld
		/Crimped		<u> </u>	Burrs	$\vdash$	4	ions Incomplete/	Jnclear	<u> </u>	Part Lost/Mi	ssing	L_	Wrong Stock Pulled
	Cuffs				Contamination	<u></u>	Mainte			$\vdash$	Part Moved	M		
	Heat Tre			<u> </u>	Countersink	$\vdash$	Mislabe			$\vdash$	Positioned V	-	$\vdash$	104
	Inspecti	on Strip in	Tube		Cut Too Short		Misread	i		1	Power Loss/	Surge	$\perp$	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

	Vork Order ID 100467  pril-22-13 1:41:06 PM			*100	1467*						Page 5
Revision ID: Item Name:	D2144 Hinge Bracket 4/22/13	<b>Start Qty:</b> 12.00	*12*	Accept	*N900 Cust Item II		100	)* s	Setup	Start Stop	*NS1* *NS2*
Required Date: Reference:	5/03/13	Req'd Qty: 12.00	*12*		Customer:		_			C4 a4	
Approvals:	Process Pla	n:	Date:	Tooling:	Da	ite:		ŀ		Start	*NR1*
	QC:		Date:	<b>SPC (Y/N):</b>	Da	ite:				Stop	*NR2*
Sequence ID/ Work Center II	)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reje Qty		Reject Insp. Number Stamp
220		QC21- Final Inspection -	Work Order Release	0.00					$\mathcal{A}_{k}$	7/	
*220* QC Quality Control		Memo		0.00					- 97. ,	// /	Pl 13-10-10 MK 13-10-09

											DQA:	Da	ate:	
NCR: Y	es / No				WORK ORDER NON-C	100	NFORM	MANCE / UP	DATE		•			
											QA Closed:	Da	ate:	
Work Orde	֥				DISPOSITION				AGAINST D	EF	PARTMENT	PROCESS		
Part N					Rework Scrap		ſ	Skid-tube Machining	Crosstube Small Fab			Water Jet d. Eng. Coor e/Packaging		Engineering Quality Other
NCR N	NCR No				Use-as-is Work Order Update			noforming Large Fab	Finishing Composite		Rec/Stor	Supplier	·	J Other
Root				Descri	ption of work order update	Ī	nitial	Ac	tion		Sign &			
Cause	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription		Date	Verification	n	QC Inspector
Doc/Data														
Equip/Tooling						1				١				
Operator														
Material														
Setup						l								
Other										1		0		
Process														
Supplier				l		ł			•					
Training			<u> </u>											
Unapproved		<u> </u>	ļ							_				
					<del></del>	AUL	T CATE	GORY		_				* ***
Landin	g Gear				General	_	7		<b></b>	_	1		_	1 .
	Bending				Bend	_	Grain		_	_	Ovalized		<u> </u>	Pressure/Forced
	Centre N	ot Conce	ntric to	O/S	BOM/Route		Hardwa		<u></u>	_	Over/Under		$\perp$	Temperature/Cure
	Cracks				Broken/Damaged		•	on Incomplete	<u> </u>	-	Part Incorred		<u>_</u>	Weld
L	Crushed,	/Crimped			Burrs		4	ions Incomplete/	Unclear	$\neg$	Part Lost/Mi	ssing		Wrong Stock Pulled
	Cuffs			<u> </u>	Contamination		Mainte	nance		_	Part Moved			
	Heat Tre	at			Countersink		Mislabe	eled		$\dashv$	Positioned V	_	_	•
	Inspection	on Strip in	Tube		Cut Too Short		Misread	i			Power Loss/	Surge		Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

## **Picklist Print**

April-22-13 1:41:06 PM

Work Order ID:

100467

Parent Item:

D2144

Parent Item Name:

Hinge Bracket

**Start Date:** 4/22/13

Required Date: 5/03/13

**Start Qty: 12.00** 

Required Qty: 12.00

Comments:

IPP: D04.05.06ReformatKJ/RF

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S16GA 304/316 Sheet .063		Purchased	No			120	sf	295.0214	0.0945 1 <b>26</b> 15	1.134	2.84		Ac
				<b>Location</b>		Loc Qty	Lo	c Code				/3	3,08
				MAT020		295.0213688							
				1222	45	0.1713688							
				1231	36	140.8						•	
				1244	28	36							
				1245	72	118.05							

Page 1

•			DQA:	Date:
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE		
	·	·	QA Closed:	Date:

									·	QA Closed:	Date:	
Work Orde	er:				DISPOSITION			A	AGAINST DEF	PARTMENT	PROCESS	
Part N	lo	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Rework Scrap Use-as-is Work Order Update	The	M ermo	lachining Sr oforming F	rosstube mall Fab inishing mposite		Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
Root				Descr	iption of work order update	Initia	1	Action		Sign &		
Cause	Dat	e Step	Qty		or Non-conformance	Chief E		Descriptio	n	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier												
Training												
Unapproved												
			1	1	F	AULT CA	TEG	ORY				
Landir	ng Gear				General				<u> </u>			
	Centre Not Concentric to O/S Cracks Bro Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion  BOI BOI BOI BOI BOI BOI BOI BOI BUT COL DOI BOI BUT BUT BUT BUT BUT BUT BUT BUT BUT BUT				Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish	Instr Mai Misl Misr Offso	dward ruction inter labeled read set of Ca	on Incomplete ons Incomplete/Uncleanance	ar	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct ssing	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	$\vdash$	-		-		-		•	•			
1	ı ıWave	Wave/Twist in Tube Folio					siae i	Dimensions				

DART AEROSPACE LTD	Work Order:	100467	
Description: Hinge Bracket	Part Number:	D2144	
Inspection Dwg: D2144 Rev: D		Page 1 of 1	

## FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
3.381	+/-0.010	3.381			V	JKM -U1
3.022	+/-0.010	3.022	_		V	,
2.468	+/-0.010	2.468	-	,,	V	
1.913	+/-0.010	1,913	1		V	
1.555	+/-0.010	1.555	1		V :	
4.126	+/-0.010	4.132			V	
3.465	+/-0.010	3,465	•		V 33	31
0.340	+/-0.010	.340	-	· · · · · · · · · · · · · · · · · · ·	V	
0.625	+/-0.010	.625	_		V	
1.000	+/-0.010	1,000	-	1	V	·
1.083	+/-0.010	1.083			VIII	
1.660	+/-0.010	1.660	-	<del></del>	<b>U</b>	· · · · · · · · · · · · · · · · · · ·
, 2.312	+/-0.010	2.312	_		V	· · · · · · · · · · · · · · · · · · ·
2.844	+/-0.010	2.844			V	
3.294	+/-0.010	3294	_		<b>V</b>	
Ø0.257	+0.006/-0.001	.256	_		V	
Ø0.171	+0.005/-0.001	.170	-		v	
Ø0.320	+0.006/-0.001	.319	·-			
0.354	+/-0.010	.354	-	,	V	-
0.063	+/-0.010	. 056	-	,	V *	
i		.002		,	<u> </u>	
, 1					1.	
		;	<del>,,</del>	,		

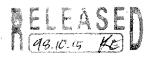
			/>Prof to		
Measured by:	4	Audited by:	27	Prototype Approval:	N/A
Date: /3	3.08.11	Date:	1370	Date:	N/A

:	Rev	Date	Change	_		 Revised by	Approvæd
	Α	07.05.31	New Issue			 KJ/JLM &	
7					. , , , , , , , , , , , , , , , , , , ,	 	<del></del>

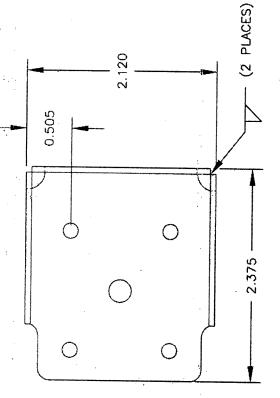


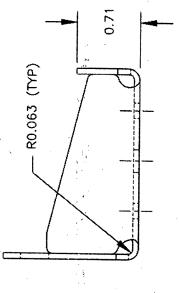


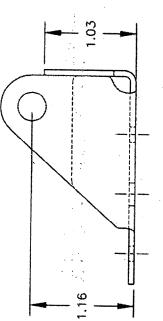
Casalaii		
DESIGN BW	ORAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. REV. D D2144 SHEET 1 OF 2
DATE		TITLE SCALE
 98.10.08		HINGE BRACKET 1:1
Α	95.03.17	NEW ISSUE
С	96.06.05	FLAT PATTERN LAYOUT ADDED
D	98.10.08	UPDATED DIMS AFTER BEND (TSR A017)



100467 MLS







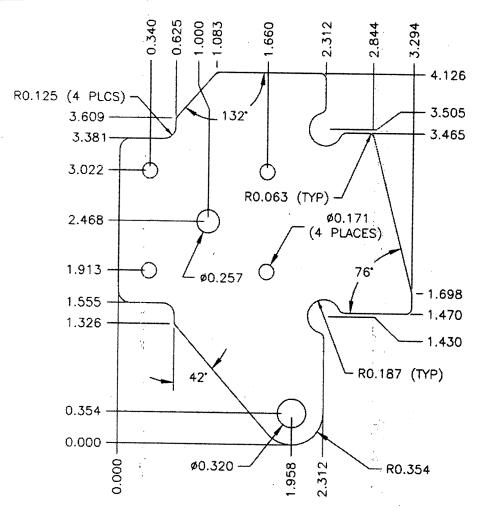
FINISH: POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3 TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED WELD PER DART QSI 004





DESIGN BW	ORAWN. BY	DART AEROSI HAWKESBURY, ONTA	
CHECKED	APPROVED	DRAWING NO.	REV. D SHEET 2 OF 2
DATE		TITLE	SCALE
98.10.08		HINGE BRACKET	} <b>1:1</b>

## RELEASED 198.10.15 LB



## D2144 FLAT PATTERN

MATERIAL: AISI 304/316-2B SS, 0.063 THICK TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES